Technical Seminar:
Femap and NX Nastran Essentials: Starting Fresh

Topics:

- Navigating the Femap Interface: Panes, Blanking, Visibility, etc.
- Workflow for Introductory Analyses: Solid, Plate and Beam
- Summary of Useful Tips and Tricks

A Brief Q&A Period

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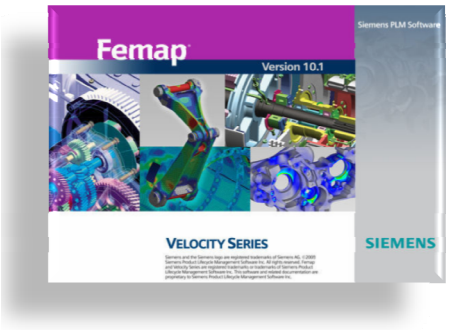
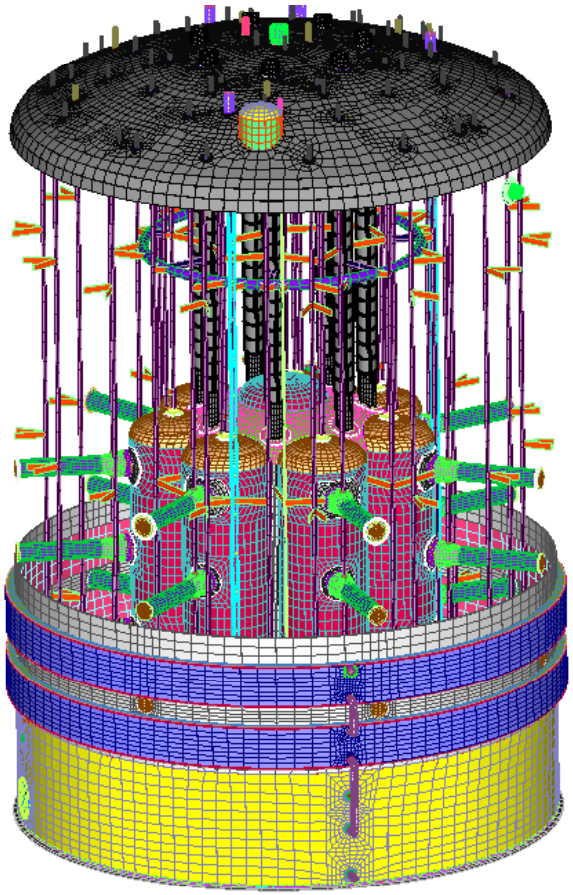


Technical Seminar: Femap and NX Nastran Essentials
Getting Started with Femap

I. A Walk-About the interface:
   a.) Preferences
   b.) Tool bars and Panes

II. How Femap is graphically organized:
   a.) Visibility; Blanking; Groups; View Options
   b.) Saving these options for future use

III. Customization of Interface



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Technical Seminar: Femap and NX Nastran Essentials
Workflow for Simple FEA of Solid Geometry: Piece Part

I. FEA Made Easy

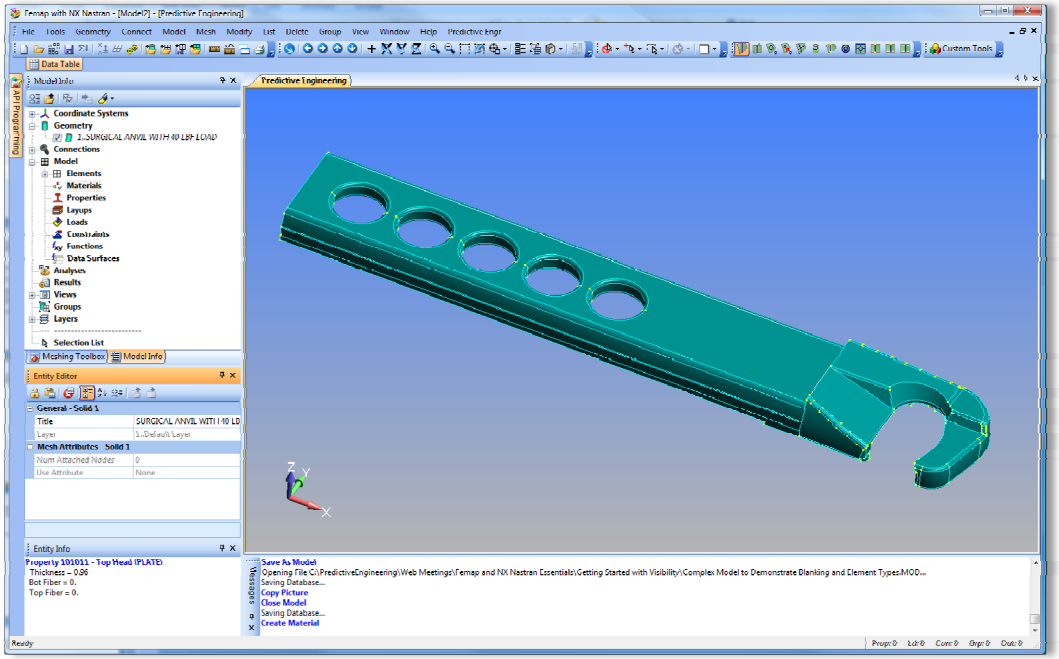
II. Workflow

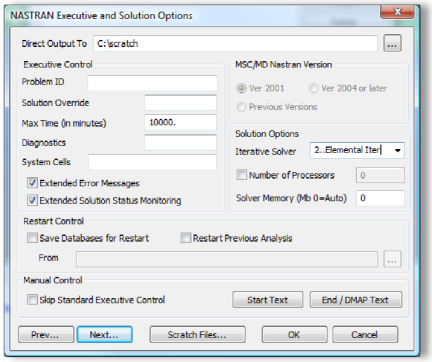
- (a) Material
- (b) Element
- (c) Mesh Sizing
- (d) Mesh
- (e) Loads
- (f) Constraints

III. Analysis

- (a) Iterative Solver

IV. Post Processing





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FINITE ELEMENT ANALYSIS
Predictive Engineering

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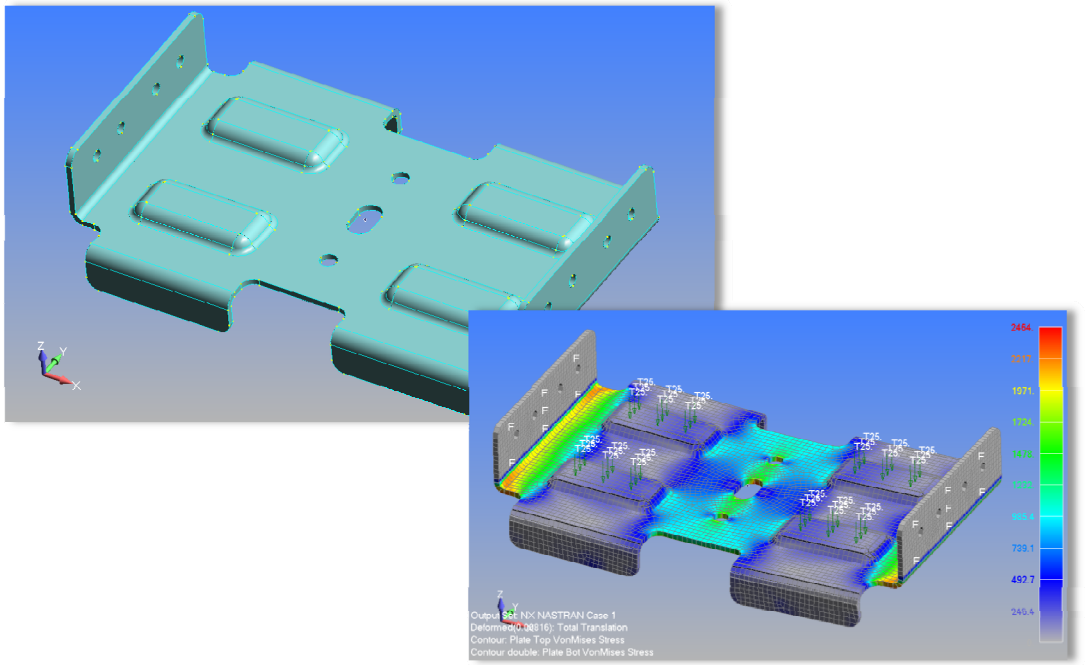
Workflow for Simple FEA of Plate Geometry: Piece Part

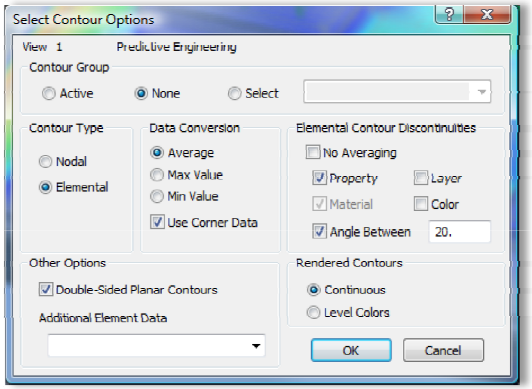


I. FEA Made Easy

II. Workflow
- (a) Geometry Preparation
- (b) Material
- (c) Element
- (d) Mesh Sizing (default)
- (e) Mesh
- (f) Loads (25 lbf /pad)
- (g) Constraints

III. Analysis
- (a) Default the Whole Way

IV. Post Processing
- (a) Plates have top and bottom surfaces



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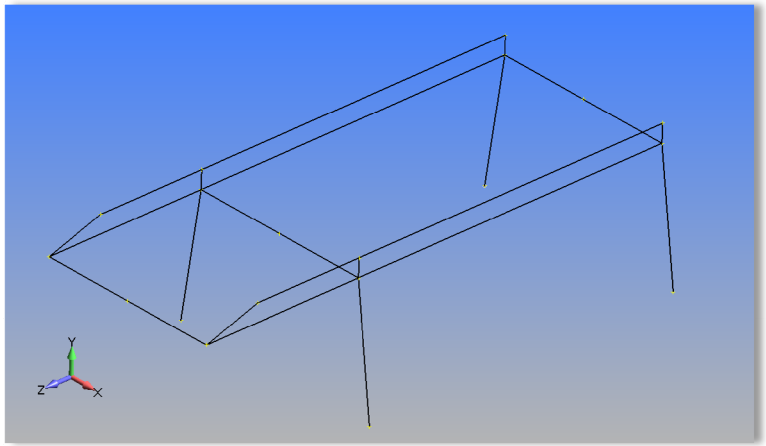
Finite Element Analysis
Predictive Engineering

Technical Seminar: Femap and NX Nastran Essentials
Workflow for Simple FEA of Beam Geometry: Piece Part

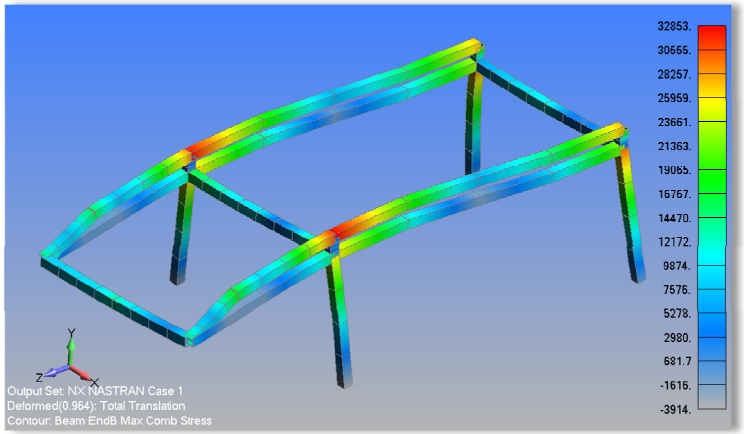


I. FEA Made Easy

II. Workflow
- (a) Geometry Preparation (loads / API)
- (b) Material (Steel)
- (c) Element (2x2x0.083)
- (d) Mesh Sizing (4”)
- (e) Mesh (Beam Orientation / Merge)
- (f) Loads (500 lbf Corners & Midpoint w/ 0.2 g)
- (g) Constraints (pinned)

III. Analysis
- (a) Default the Whole Way

IV. Post Processing
- (a) Beams use “Beam Diagram”



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Finite Element Analysis
Predictive Engineering

Technical Seminar: Femap and NX Nastran Essentials
Summary of Useful Tips and Tricks

These are my pick of the pack:

- Ctrl-Z to bring up the Locate Dialog Box while you are in another Dialog Box
- Ctrl-D to make measurements
- The PCGLSS Iterative Solver
- The NX Nastran 64-Bit Sparse Matrix Solver for really big stuff.
- Using the Save and Load View Option to customize your View Window
- Femap's API Language
- NX Nastran param,bailout,-1
- Femap's and NX Nastan Help Documentation

Ctrl-Z to bring up the Locate Dialog Box while you are in another Dialog Box

This is quite the little Femap secret, but it is in the manual. See the Femap User Manual Section 4.2.4:

A few of the more useful but less obvious shortcut keys are listed below. These keys work within a text or drop down list box in a FEMAP dialog box or list boxes in FEMAP. They do not apply to other Windows applications except for those noted as Windows commands. For a complete list of shortcut keys, see Section A, "Using the Keyboard".

Key(s)	Function
Ctrl+A	Measure an angle.
Ctrl+C	Copy (Windows command)
Ctrl+D	Measure a distance.
Ctrl+E	Display FEMAP Equation Editor for interactive definition of variables and equations.
Ctrl+F	List functions.
Ctrl+G	Snap cursor selections to snap grid.
Ctrl+L	Display a list of the existing entities of the desired type.
Ctrl+N	Snap cursor selections to nearest node.
Ctrl+P	Snap cursor selections to nearest point.
Ctrl+S	Snap cursor selections to screen (snap off).
Ctrl+T	Redefine snap grid.
Ctrl+V	Paste (Windows command)
Ctrl+W	Redefine workplane.
Ctrl+X	Cut (Windows command)
Ctrl+Z	Use standard coordinate selection dialog box to define location.

You may be asking yourself how I would use this, but think of all the times you have used the Geometry / Solid / Slice tool and needed to located a dimension! Or wanted to snap to a point (Ctrl+P) within another box…